



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/587,151

02/20/2007

Elio Poggiagliolmi

66455-275-7

4994

25269

7590

02/12/2008

DYKEMA GOSSETT PLLC
FRANKLIN SQUARE, THIRD FLOOR WEST
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER

MISA, JOAN D

ART UNIT

PAPER NUMBER

4155

MAIL DATE

DELIVERY MODE

02/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,151	Applicant(s) POGGIAGLIOLMI ET AL.	
	Examiner JOAN D. MISA	Art Unit 4155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/24/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/27/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title is objected to because of the following informalities:

Referring to MPEP 600 [R-5] "*Title of Invention*", it reads that "the articles "a," "an," and "the" should not be included as the first words of the title of the invention and will be deleted when the Office enters the title into the Office's computer records, and when any patent issues. Therefore, the title of the application "A Device For Picking Fruits" should read "Device For Picking Fruits" where the article "A" is omitted.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following titles are suggested: "Device for Picking Fruits Using Unidirectional Vibration" or "Mechanical Vibrating Device for Picking Fruits"

Claim Objections

1. Claims 42-43 are objected to because on line 1 of each claim, where it reads "wherein the drive means has...", "drive means" lacks antecedent basis since the claim or claims it is dependent contain no earlier recitation or limitation of a drive means. Appropriate correction is required.
2. Claims 24, 27-29, 36-38, and 46-47 are objected to because all claims contain the phrase "and/or" which render the claims indefinite. For the purpose of this examination, the examiner considers "and/or", cited in the previously listed claims, to read as merely "or".

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 24 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Pellenc (FR 2,639,176), with reference to a machine translation.**

In re **claim 24**, Pellenc discloses in Figure 4 a method of removing fruit from a plant achieved by or inherent in a device *connecting drive means ("verin alternatif" 38) to the plant to apply vibrations thereto, wherein the vibrations have an amplitude and/or frequency and/or phase which varies with time*, as disclosed in page 1, lines 25-33 and page 8, lines 9-12 and 22-24.

In re **claims 27-28**, Pellenc further discloses on page 2, lines 13-21, page 8, lines 12-21, page 8-10, and Figure 6, the method of claim 24:

a. *wherein one or more sensors ("des capteurs magnétiques" 49a & 49b) measures the acceleration and/or displacement of the vibrations, per claim 27;*

b. *further comprising the step of adjusting the frequency and/or phase and/or amplitude of the vibrations in dependence on the sensor information, per claim 28.*

Art Unit: 4155

In re **claim 29**, Pellenc further discloses the method of claim 24, *wherein the amplitude and/or frequency and/or phase of the vibrations is adjustable manually*, as suggested on page 10, lines 28-34.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 25-26 and 36-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc (FR 2,639,176), with reference to a machine translation, in view of Zehavi et al. (US PGPub 2004/0079065).

In re **claims 25**, Pellenc discloses the method of claim 24 above, except wherein the vibrations are substantially unidirectional.

Zehavi et al. discloses a method inherent in a device for removing fruit from a plant, *wherein the vibrations are substantially unidirectional*, as disclosed on page 1, paragraph 009 and 013. According to Zehavi et al., the advantage of using a unidirectional force or vibration is that optimal harvesting results can be achieved and shaking-vibration harm to the mechanical device, to the vehicle, and to the driver can be prevented (Para. 009).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method inherent in the device of Pellenc similar to that of Zehavi et al., which is to utilize a unidirectional force or vibration, to achieve optimal harvesting result and prevent detrimental effects on the mechanical device, the vehicle, and the driver.

In re **claims 26**, Zehavi et al. further discloses the method of claim 24 above, *wherein the vibrations are applied to the plant substantially normally to the longitudinal axis of the plant*, as disclosed in page 1, paragraph 013 and as shown in Figure 1, wherein the shaking direction is along the x-axis and the longitudinal axis of the plant is the axis emerging from the paper.

In re **claim 36**, Pellenc discloses in Figure 4 a device for removing fruit from a plant comprising:

- a. *a vibratory head, as illustrated in Figure 4, having means (“la pince” 40 & 41) for clamping a fruit plant to apply vibrations to the plant, and means (“la servo-valve” 47) for controlling the vibratory head,*
- b. *the vibratory head further comprising at least one reaction mass (“verin alternatif” 38) which is vibratably driveable and connected to the clamping means (40 & 41) for relative movement therebetween to provide a unidirectional force transmittable between the reaction mass and the clamping means, and hence transmittable to the plant,*
- c. *wherein the vibrations have an amplitude and/or frequency and/or phase which varies with time, as disclosed in page 1, lines 25-33 and page 8, lines 9-12 and 22-24.*

However, Pellenc does not disclose that the vibratory head provides a unidirectional force transmittable between the reaction mass and the clamping means.

Zehavi et al. discloses a device for removing fruit from a plant wherein the vibratory head (**linear vibration generator 4**) provides *a unidirectional force transmittable between the reaction mass and the clamping mean*, as suggested in the abstract, lines 9-10; page 1, paragraph 009; and page 5, paragraph 053 which corresponds with Figure 1. According to Zehavi et al., the advantage of using a unidirectional force or vibration is that optimal harvesting results can be achieved and shaking-vibration harm to the mechanical device, to the vehicle, and to the driver can be prevented (Para. 009).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the vibratory head of the device of Pellenc similar to the vibration generator of Zehavi et al., which includes a unidirectional force between a reaction mass and a clamping means, to achieve optimal harvesting result and prevent detrimental effects on the mechanical device, the vehicle, and the driver.

In re **claim 37**, Pellenc in view of Zehavi et al. further discloses the device of claim 36, *wherein the control means comprise electronic control means (“la servo-valve” 47) for controlling the amplitude and/or frequency and/or phase of the vibrations*, as suggested on page 1, lines 25-33 and page 8, lines 7-13.

In re **claims 38-41**, Pellenc in view of Zehavi et al. further discloses:

- a. Per claim 38, the device of claim 36, *wherein the ~~or each~~ reaction mass (38) comprises a hydraulic cylinder (“le corps” 38a) and ~~or~~ piston (“la tige” 38b);*
- b. Per claim 39, the device of claim 38, *wherein the hydraulic piston (38b) and cylinder (38a) are driven by pressurised fluid which is selectively applied to chambers of the hydraulic cylinder (38a) by a valve (47)*, as disclosed on page 8, lines 9-12.
- c. Per claim 40, the device of claim 38, *wherein the reaction mass (38) comprises a piston (38b).*
- d. Per claim 41, the device of claim 38, *wherein the reaction mass (38) comprises a cylinder (38a).*

In re **claim 42 and 43**, Pellenc in view of Zehavi et al. discloses the device of claim 38 except *wherein the drive means has two cylinders and two pistons and wherein the drive means has more than two pistons and cylinders arranged orthogonally to one another for placement around the trunk or*

Art Unit: 4155

branch and drivable sequentially. However, Pellenc discloses the device of claim 38 wherein the drive means has one cylinder **(38a)** and one piston **(38b)**. This limitation simply amounts to adding the same device to an existing structure twice or more than twice. Specifically, the applicant merely describes multiple pistons and multiple cylinders already described in the singular. Accordingly, the examiner considers these two limitations to be duplication of parts.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to duplicate the piston and cylinder of the device of Pellenc since it has been held that duplication of the essential working parts of a device involves only routine skill in the art. MPEP 2144.04.

In re **claims 44-45**, Zehavi et al. further discloses the device of claim 36,

- a. Per claim 44, *wherein the vibrations of the or each reaction mass are substantially unidirectional*, as disclosed on page 1, paragraph 009 and 013;
- b. Per claim 45, *wherein the vibratory force is applied to the plant substantially normally to the longitudinal axis of the plant*, as disclosed in page 1, paragraph 013 and as shown in Figure 1, wherein the shaking direction is along the x-axis and the longitudinal axis of the plant is the axis emerging from the paper.

In re **claims 46-47**, Pellenc in view of Zehavi et al. further discloses on page 2, lines 13-21, page 8, lines 12-21, page 8-10, and Figure 6, the device of claim 36:

- a. Per claim 46, *further comprising sensors ("des capteurs magnétiques" 49a & 49b) for measuring the acceleration and/or velocity and/or displacement of the vibrations;*
- b. Per claim 47, *wherein the frequency and/or phase and/or amplitude of the vibrations of the reaction mass are adjustable in dependence on the sensor information.*

In re **claim 48**, Pellenc in view of Zehavi et al. further discloses the device of claim 36, *wherein the control means are manually adjustable*, as suggested on page 10, lines 28-34.

In re **claims 49-53**, Pellenc in view of Zehavi et al. discloses the device of claim 36, but does not expressly disclose the following:

- a. Per claim 49, *wherein the frequency of the vibrations is swept linearly or non-linearly from an initial sweep frequency to a final sweep frequency*;
- b. Per claim 50, *wherein the initial sweep frequency is higher than the final sweep frequency*;
- c. Per claim 51, *wherein the initial sweep frequency is lower than the final sweep frequency*;
- d. Per claim 52, *wherein the vibrations include a modulation component which has a much lower frequency than the sweep frequency*; and
- e. Per claim 53, *wherein the frequency range is limited by a band pass filter*.

However, given the fact of the issues known in the art as disclosed by the applicant, with the use of one single dominant frequency, the trees are prone to damage, often including substantial removal of leaves and/or twigs of the tree. It would have been obvious to vary the frequency of the vibration, according to the limitations of claims 49-53, depending on certain factors, such as the size of the tree or fruits, the time of the harvest, the ripeness of the fruits, etc., to prevent such damage to the tree and achieve high harvesting efficiency. Thus, the examiner considers that the electronic device that controls the servo valve of the device of Pellenc used to adjust the frequency and/or amplitude of the movement of the vibration head, inherently meets the limitations of claims 49-53.

In re **claim 54**, Pellenc in view of Zehavi et al. discloses the device of claim 36, except *wherein frequencies which cause leaf detachment from the tree are substantially omitted from the vibrations.*

However, given that the applicant discloses that an issue with current mechanical shaking devices is that “mechanical shaking methods damage the trees and leads to the unwanted removal of leaves and small branches” (pg. 1, lines 20-21 & pg. 2, lines 2-6), it would have been obvious to one of ordinary skill in the art at the time the invention was made to omit applications of frequencies that cause leaf detachment from the tree from the vibrations since removal of leaves and small branches due to mechanical shaking methods are deemed unwanted.

3. Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc (FR 2,639,176) in view of Zehavi et al. (US PGPub 2004/0079065) as applied to claim 38 above, and further in view of Podolsky et al. (WO 2004/006646).

In re **claim 55**, Pellenc in view of Zehavi et al. discloses the device of claim 38 above, except wherein the vibratory head is mounted on carrying means with respect to which the vibratory head is independently movable.

Podolsky et al. discloses a device for the orchard harvesting, *wherein the vibratory head is mounted on carrying means (Fig. 3, rockers 17 & 19) with respect to which the vibratory head is independently movable, (Pg. 14, lines 15-17).* The purpose of the housing (or vibratory head) being suspended on the frame via the rockers is to prevent vibration transmission to the body of the vehicle, as disclosed by Podolsky on page 8, lines 6-9.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Pellenc to include the carrying means of Podolsky et al. in order to prevent vibration transmission to the body of the vehicle.

In re **claim 56**, Pellenc in view of Zehavi et al. discloses the device of claim 38 above, except *wherein the drive means utilizes electromagnetic or pneumatic force to oscillate the reaction mass.*

However, since the applicant has not disclosed that having electromagnetic or pneumatic force to oscillate the reaction mass solves any stated problem or is for any particular purpose, and it appears that the device would perform equally well with the drive means using either of the forces, the examiner considers that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a drive means that utilizes electromagnetic or pneumatic force to oscillate the reaction mass as a matter of design choice, as further supported by Podolsky on page 9 lines 9-11.

4. Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellenc (FR 2,639,176).

In re **claims 30-34**, Pellenc discloses the device of claim 24; however, he does not expressly disclose the following:

- a. Per claim 30, *the step of sweeping the frequency of the vibrations linearly or non-linearly, from an initial sweep frequency to a final sweep frequency;*
- b. Per claim 31, *wherein the initial sweep frequency is higher than the final sweep frequency;*
- c. Per claim 32, *wherein the initial sweep frequency is lower than the final sweep frequency;*
- d. Per claim 33, *wherein the vibrations include a modulation component which has a much lower frequency than the sweep frequency; and*
- e. Per claim 34, *the step of limiting the range of frequencies of the vibrations by means of a band pass filter.*

Art Unit: 4155

Nonetheless, the limitations of claims 30-34 above could inherently be performed by the device of Pellenc as previously addressed in the rejection of claims 49-53 above, and therefore meet the limitations of claims 30-34.

In re **claims 35**, Pellenc discloses the method of claim 24, except for *the step of omitting frequencies from the vibrations which cause leaf detachment from the tree*. However, given that the applicant discloses that an issue with current mechanical shaking devices is that “mechanical shaking methods damage the trees and leads to the unwanted removal of leaves and small branches” (pg. 1, lines 20-21 & pg. 2, lines 2-6), it would have been obvious to one of ordinary skill in the art at the time the invention was made to omit applications of frequencies that cause leaf detachment from the tree from the vibrations since removal of leaves and small branches due to mechanical shaking methods are deemed unwanted.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOAN D. MISA whose telephone number is (571)270-3745. The examiner can normally be reached on Monday - Friday, 8:00am - 5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Victor Batson can be reached on (571) 272-6987. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 4155

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor Batson/
Victor Batson
Supervisory Patent Examiner
Art Unit 4155

JDM
2/1/08